INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

19 April 2021 (am)

Subject SP4 – Pensions and Other Benefits Specialist Principles

Time allowed: Three hours and fifteen minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

1 In advance of a funding valuation, the managers of a defined benefit pension scheme have commissioned a consultant to perform an independent business review of the sponsor covenant.

(i) Describe what is meant by sponsor covenant, including how sponsor covenant is commonly categorised. [2]

The scheme managers have approached the scheme's sponsor to request that the sponsor provides financial information on the sponsor's company to the consultant for the review.

The sponsor suggests that an independent business review is not necessary because the sponsor covenant is not important to the funding of the scheme.

(ii) Describe the possible circumstances when the sponsor covenant is not important, giving two examples. [2]

(iii) Outline how the scheme managers or their advisers may use the information already available to them to assess the sponsor's suggestion. [2]

[Total 6]

2 The regulator in a developed country has adopted a very strict policy relating to pension deficits and surpluses whereby schemes must target a funding level of 100%. Funding valuations are carried out every 4 years. At each valuation, companies must set out the actions they will take to ensure there is neither a surplus nor a deficit at the next valuation in 4 years' time.

(i) Explain what is meant by an actuarial surplus and a deficit. [1]

(ii) Outline the actions a sponsoring employer may take to eliminate surpluses or deficits by the next valuation. [4]

Two years after the previous funding valuation reported a surplus, a sponsoring employer has asked its actuary to estimate if it is on track to remove this surplus by the next valuation.

(iii) Outline the information the actuary would need in order to perform this exercise. [3]

The actuary concludes that the sponsoring employer is broadly on track to remove the surplus and meet the 100% funding target at the next valuation.

(iv) List the key factors that may result in the target not being met. You should assume that the assumptions at the next valuation are unchanged. [3]

(v) Describe the main advantages and disadvantages of the regulator's policy. [5]

[Total 16]

3 The government of Country A offers an unfunded defined benefit pension scheme for firefighters based on its offshore oil rigs. This is financed on a Pay-As-You-Go basis. The government is reducing its reliance on oil for energy and has a plan to shut down the offshore oil rigs in Country A in the next 5 years.

The government is considering changing the financing method for this scheme to an advance funding method. It has asked its actuary to undertake a valuation.

(i) Describe the membership data the actuary will require to perform the valuation. [5]

(ii) State the types of data checks that could be carried out to establish the validity of the data. [2]

(iii) Describe the criteria the government should consider in reviewing its financing strategy. [8]

[Total 15]

4 (i) Outline the key design considerations in setting up a new defined contribution pension scheme. [5]

A manufacturing company sponsors a defined benefit pension scheme, which is currently open to new members. The company proposes to close this scheme to new members and set up a new defined contribution pension scheme for new members. Existing members will continue to accrue benefits in the defined benefit pension scheme.

The company has asked its actuary to comment on the proposal.

(ii) Describe the advantages and disadvantages to the company of this proposal. [8]

The company decides to set up the new defined contribution pension scheme with a guarantee that the pension from the scheme will be at least as large as a benefit of 1/120th of salary for each year of service.

(iii) Discuss how this scheme may be financed. [6]

[Total 19]

5 A company currently sponsors a defined benefit pension scheme for its employees. The scheme is run by scheme managers.

The scheme provides a pension equal to 1/60th of final salary for each year of accrued service. Pensions in payment increase each year in line with price inflation.

The sponsoring company wishes to offer members the option to give up their future pension increases in return for a larger pension that does not increase. It is considering implementing this as a one-off exercise for current pensioners and as a standard retirement option for future pensioners.

(i) Give examples of reasons why the sponsoring company may wish to offer this option. [1]

(ii) Outline the main factors to be considered when setting member options. [3]

(iii) Describe the key risks of offering this option from the perspectives of both the sponsoring company and scheme managers. [5]

(iv) Discuss how the risks identified in part (iii) may be mitigated. [11]

[Total 20]

6 (i) Describe the key features of an accrued benefits funding method. [2]

A large defined benefit pension scheme, which is closed to new entrants, is about to undergo a funding valuation. At the previous funding valuation, the Projected Unit Method was used to determine the Actuarial Liability and the Standard Contribution Rate. The scheme managers are proposing the same funding method be used for the upcoming valuation.

The following summary data and proposed assumptions for the funding valuation have been provided:

Data	
Total pensionable salary roll:	£12m p.a.
Average past service length for active members:	10 years
Accrual rate:	1/60ths
Total pensions in respect of leavers at the valuation date:	£10m p.a.
Total pensions in payment in respect of current pensioners at the valuation date:	£15m p.a.
Average age of active members:	40
Average age of deferred pensioners:	50
Average age of current pensioners:	70
Normal retirement age:	65
Assumptions	
Discount rate:	3% p.a.
Salary increase:	2.5% p.a.
Pension increases in deferment (revaluation):	2% p.a.
Annuity at age 65:	18
Annuity at age 70:	15

(ii) Determine the

(a) Actuarial Liability, and

(b) Standard Contribution Rate

for the scheme under the Projected Unit Method, stating any assumptions that you make. [9]

The sponsoring employer of the scheme has asked the scheme managers to consider using the Current Unit Method for the upcoming valuation, with allowance for revaluation of deferred benefits after the end of the control period.

(iii) Determine the Actuarial Liability and the Standard Contribution Rate for the scheme under the Current Unit Method, stating any assumptions that you make. [5]

(iv) Describe the advantages and disadvantages of using the Current Unit Method instead of the Projected Unit Method from the viewpoint of:

(a) the sponsoring employer.

(b) the scheme managers.

[8]
[Total 24]

END OF PAPER